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10/722,648

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Frank L. Rees

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PETER K. TRZYNA, ESQ.  
P O BOX 7131  
CHICAGO, IL 60680

EXAMINER

LOBO, IAN J

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FRANK L. REES

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Appeal 2009-005593  
Application 10/722,648  
Technology Center 3600

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Before: WILLIAM F. PATE III, STEFAN STAICOVICI, and  
KEN B. BARRETT, *Administrative Patent Judges*.

PATE III, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 from a rejection of claim 1.  
We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

The claim is directed to a method of identifying an object. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method of identifying an object, the method including the steps of:
  - directing a primary acoustic waveform at the object to produce a nonlinear acoustic effect by using multiple projectors driven by a synthetic spectrum;
  - receiving a secondary wavelet produced by the nonlinear effect; and
  - processing the received secondary wavelet in identifying the object.

## REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Rees	US 6,034,760	Mar. 7, 2000
Sen	US 6,418,081 B1	Jul. 9, 2002

## REJECTIONS

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sen and Rees. Ans. 4.

## ISSUES

Appellant contends that the Examiner's citation to "backscattering" in Sen does not sufficiently disclose the claimed "secondary wavelet" recited in

claim 1. App. Br. 7-11; Reply Br. 1-13. Appellant alleges the “backscattering” has no bearing on the claimed “secondary wavelet” (App. Br. 8), Sen makes no mention of a “wavelet” (App. Br. 8), the Examiner failed to explain how Sen’s backscattering, read as the claimed “wavelet,” is produced by the nonlinear acoustic effect (App. Br. 9) and the Examiner failed to consider definitional evidence regarding the terms “backscattering” and “wavelet” (App. Br. 10). Accordingly, the first issue for our consideration is whether the Examiner erred by finding that Sen discloses the claimed “secondary wavelet.”

Appellant additionally contends that the Examiner erred in rejecting claim 1 because the Examiner failed to articulate a proper reason to combine or modify the references. App. Br. 12-16; Reply Br. 13-17. Appellant contends that the Examiner erred by combining Sen with Rees because such a combination would render the cited art inoperable for their respective purposes (App. Br. 12-14), would change the principle of operation of the references (App. Br. 14-15), and the references teach away from the Examiner’s proposed combination (App. Br. 15-16). Accordingly, the next issue for our consideration is whether the Examiner erred by relying on the combined teachings of Sen and Rees to support the conclusion that the claimed subject matter would have been obvious to one having ordinary skill in the art.

We note that Appellant alleges that the Examiner’s rejection is not in compliance with 35 U.S.C. § 132 as it is “not understandable.” App. Br. 17; Reply Br. 17-18. This argument does not raise any issues of patentability and therefore does not relate to the merits of claim 1. Thus, this issue relates to petitionable subject matter under 37 C.F.R. § 1.181 and not to appealable subject matter. *See* MPEP § 1201.

## FINDINGS OF FACT

1. The Specification states that “[t]he departure facilitated by the Gauss-Rees waveform into nonlinear acoustics is an advance over linear (so-called ‘small-signal fluctuation’) approaches, at least in that it has been discovered that the elastic scattering properties of sonic-propagation media change as pressure-fluctuation induced stresses are increased.” Spec. 5:7-10.
2. The Specification further states that “[i]n any of the embodiments, the step of receiving can include receiving the secondary wavelet as scattered acoustic energy, as backscattered acoustic energy, as oblique scattered acoustic energy, and/or as forward scattered acoustic energy.” Spec. 64:13-15.
3. Sen relates to detecting buried inclusions, in particular, land mines. Col. 1, ll. 14-15. Sen’s device “uses backscattering of the non-linear acoustic signals from a buried inclusion to locate and image the inclusion. The change in the density of the medium due to the presence of a buried inclusion results in a change in the amplitude of the pulse itself.” Col. 4, ll. 48-52. “[T]he leading edge of the backscattered pulse reveals information about the density of the buried object.” Col. 5, ll. 54-55.
4. Sen’s device employs a single detector 30 for generating acoustic signals and a plurality of sensors 33. Col. 6, ll. 28-30; fig. 9a.
5. Rees aims to detect adverse weather conditions, approaching aircraft or missiles by optically sensing the sound waves that they produce. Col. 2, ll. 6-15. Such sound waves are sensed by processing the backscattered modulated return beams reflected off the moving particles within probe volumes 16a-c located within the atmosphere. Col. 3, l. 49-col. 4, l. 15.

6. In an alternate embodiment, Rees demonstrates that it was known in the art to use pulsed acoustic waveforms, each emitted from individual projectors, in an array of loudspeakers in order to transmit a synthetic spectrum waveform causing detectable periodic pressure discontinuities formed through nonlinear acoustic interaction. Col. 15, l. 61-col. 16, l. 4.
7. Appellant's claimed invention involves a Gauss-Rees parametric ultrawideband system that uses principles of nonlinear acoustics to determine properties of waveforms transmitted from an object to be identified. Spec. 3-13. This requires an advanced understanding of acoustics, materials, wave analysis and cargo detection systems. Thus, the level of skill in the art is high.

### ANALYSIS

The Examiner did not err by construing the term "secondary wavelet" to include the "backscattering" as described by Sen. While extrinsic evidence, such as dictionaries or scholarly articles, may be helpful in construing the meaning of claim terms, the best place to consult is the intrinsic record, namely, the specification. *See Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1300 (Fed. Cir. 2003). Here, the Specification clearly demonstrates Appellant's intent to include receiving backscattered acoustic energy within the meaning of "receiving a secondary wavelet." Fact 2. Wavelets, consistent with both the Specification and the extrinsic evidence furnished by Appellant, are mathematical representations of a particular phenomenon, in this case acoustic energy. *See App. Br. Evidence App'x, An Introduction to Wavelets.* Sen receives and analyzes backscattered acoustic pulses or portions thereof. Fact 3. This acoustic energy is the same type described by Appellant, namely, non-linear

acoustics. *See* Fact 3. Thus, Sen “receiv[es] a wavelet produced by the nonlinear effect” as required by claim 1, even though Sen does not use the same language or mathematical expression to describe the received energy. Sen, therefore, discloses the method substantially as claimed except for “multiple projectors.”

Rees, like the instant application, recognizes that the nonlinear effect due to pressure discontinuities or fluctuations may be used to obtain information about a distant item. *See* Facts 1 and 6. Rees also recognizes the advantages of transmitting a synthetic spectrum using pulsed acoustic waveforms each emitted from individual projectors to create very sharp periodic pressure discontinuities making them more easily detectible. *See* Fact 6. Thus, claim 1 involves no more than the predictable use of prior art techniques and would have been obvious to one having ordinary skill in the art.

Appellant’s arguments relating to the propriety of the Examiner’s proposed combination focus on the specific structure and goals of the references. App. Br. 12-15. “[I]t is not necessary that the inventions of the references be physically combinable to render obvious the invention under review.” *In re Sneed*, 710 F.2d 1544, 1550 (Fed. Cir. 1983) (citations omitted). The relevant inquiry is whether the claimed subject matter would have been obvious to those of ordinary skill in the art in light of the combined teachings of those references. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). “Combining the teachings of references does not involve an ability to combine their specific structures.” *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973) (emphasis omitted). In light of the high level of skill in the art (Fact 7), one of ordinary skill in the art would recognize that the combined teachings of Sen and Rees are applicable to more than the specific

environments each is used in. Similarly, one of ordinary skill in the art would recognize that references dealing with analysis of one particular type of wave, such as a light wave, may be relevant to references dealing with analysis of other types of waves, such as an acoustic wave, despite the fact that those waves may behave differently in a particular medium, such as the ground, or the fact that those references do not share a common USPTO classification. Appellant's contention that the references teach away is unsupported by any showing of how the prior art criticizes, discredits or discourages the claimed invention. *Contra* App. Br. 15-16.

### CONCLUSIONS OF LAW

The Examiner did not err by finding that Sen discloses the claimed "secondary wavelet."

The Examiner did not err by relying on the combined teachings of Sen and Rees to support the conclusion that the claimed subject matter would have been obvious to one having ordinary skill in the art.

### DECISION

For the above reasons, the Examiner's rejection of claim 1 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

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Application 10/722,648

PETER K. TRZYNA, ESQ.  
P O BOX 7131  
CHICAGO IL 60680